

Application No.: 09/936,169

Docket No.: 21547-00280-US

AMENDMENTS TO THE CLAIMS

1. (Currently amended) A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:

- a body with ~~plural threads~~plural thread spirals arranged thereon;
- a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation, said one or more bone-chip recesses being formed by removal of material from the ~~plural threads~~plural thread spirals and body,
- wherein, at least in the conically tapering portion, the ~~plural threads~~plural thread spirals are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part ,
- said respective remaining thread part cooperatively engaging with the bone during the tapping operation,
- wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,
- wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,
- said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

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wherein a cutting angle formed by the pointed shape is selected to be within a range of between 15-40°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the ~~plural threads~~ plural thread spirals within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple ~~threads~~ thread spirals along at least a portion of a length thereof.

2. (Previously presented) The self-tapping implant of claim 1, wherein the cutting angle is about 20°.

3. (Previously presented) The self-tapping implant of claim 1, wherein the conically tapering portion is arranged with materially reduced thread parts with full radius and which are at least two in number.

4. (Previously presented) The self-tapping implant of claim 1, wherein the cutting angle is less than 20°.

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5. (Previously presented) The self-tapping implant of claim 1, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.

6. (Currently amended) ~~The self-tapping implant of claim 1,~~

A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:
a body with plural threads arranged thereon;

a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation,
said one or more bone-chip recesses being formed by removal of material from the plural threads and body,

wherein, at least in the conically tapering portion, the plural threads are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,

said respective remaining thread part cooperatively engaging with the bone during the tapping operation,

wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

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wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be within a range of between 15-40°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the two or more plural thread spirals within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple thread spirals along at least a portion of a length thereof,

wherein a first portion is provided with multiple threads, and a second portion is provided with a single thread or thread numbering different from a thread numbering of the first portion.

7. (Currently amended) A self-tapping implant for a bone, preferably a jawbone, the implant comprising:

a body with ~~plural threads~~ plural thread spirals arranged thereon;

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a conically tapering portion arranged at a front end of the body, and having one or more bone-chip recesses which accommodate bone material cut off during a tapping operation and which are formed by removal of material from the threads and body,

wherein, at least in the conically tapering portion, the ~~plural threads~~ plural thread spirals are materially reduced, each materially reduced thread having a cutting edge which extends inwards from an outer edge of a respective remaining thread part and which cooperatively engages with the bone during the tapping operation,

wherein each cutting edge of a number of the materially reduced threads has a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a remaining thread part front portion,

wherein cutting edges of the ~~plural threads~~ plural thread spirals comprise a straight part extending from the pointed shape of the cutting edge,

wherein a straight part on a first remaining thread part merges via a second radius into a straight rear edge on a second remaining thread part, arranged before the first thread part in a direction of screwing of the implant,

wherein the second radius is arranged to optimize a remaining material in the body and remaining thread parts and, consequently, a holding strength of the self-tapping implant.

8. (Previously presented) The self-tapping implant of claim 2, wherein the conically tapering portion is arranged with materially reduced thread parts having full radius and which are at least two in number.

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9. (Previously presented) The self-tapping implant of claim 2, wherein the cutting angle is less than 20° .

10. (Previously presented) The self-tapping implant of claim 3, wherein the cutting angle is less than 20° .

11. (Previously presented) The self-tapping implant of claim 2, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.

12. (Previously presented) The self-tapping implant of claim 3, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.

13. (Previously presented) The self-tapping implant of claim 4, wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other.

14. (Currently amended) ~~The self-tapping implant of claim 2,~~

A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:
a body with plural threads arranged thereon;

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a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation,

said one or more bone-chip recesses being formed by removal of material from the plural threads and body,

wherein, at least in the conically tapering portion, the plural threads are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,

said respective remaining thread part cooperatively engaging with the bone during the tapping operation,

wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be about 20°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

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wherein full radius portions of the plural threads within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple threads along at least a portion of a length thereof,

wherein a first portion is provided with a multiple thread, and a second portion is provided with a single thread or thread numbering different from a thread numbering of the first portion.

15. (Currently amended) ~~The self-tapping implant of claim 3,~~

A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:

a body with plural threads arranged thereon;

a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation,

said one or more bone-chip recesses being formed by removal of material from the plural threads and body,

wherein, at least in the conically tapering portion, the plural threads are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,

said respective remaining thread part cooperatively engaging with the bone during the tapping operation,

wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line

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which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be within a range of between 15-40°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the plural threads within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple threads along at least a portion of a length thereof,

wherein the conically tapering portion is arranged with materially reduced thread parts with full radius and which are at least two in number,

wherein a first portion is provided with a multiple thread, and a second portion is provided with a single thread or thread numbering different from a thread numbering of the first portion.

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16. (Currently amended) ~~The self-tapping implant of claim 4,~~

A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:

a body with plural threads arranged thereon;

a conically tapering portion arranged at a front end of the body and having one or more

bone-chip recesses therein which accommodate bone material cut off during a tapping operation,

said one or more bone-chip recesses being formed by removal of material from the plural threads and body,

wherein, at least in the conically tapering portion, the plural threads are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,

said respective remaining thread part cooperatively engaging with the bone during the tapping operation,

wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be less than 20°.

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wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the plural threads within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple threads along at least a portion of a length thereof,

wherein a first portion is provided with a multiple thread, and a second portion is provided with a single thread or thread numbering different from a thread numbering of the first portion.

17. (Currently amended) The self-tapping implant of claim 5,

A self-tapping implant for use in a bone, preferably a jawbone, the implant comprising:
a body with plural threads arranged thereon;

a conically tapering portion arranged at a front end of the body and having one or more bone-chip recesses therein which accommodate bone material cut off during a tapping operation,

said one or more bone-chip recesses being formed by removal of material from the plural threads and body,

wherein, at least in the conically tapering portion, the plural threads are materially reduced, each of the materially reduced threads having a cutting edge which extends inward from an outer edge of a respective remaining thread part,

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said respective remaining thread part cooperatively engaging with the bone during the tapping operation,

wherein each cutting edge of a number of associated cutting edges of the materially reduced threads have a pointed shape which, in a cross section thereof, essentially follows a line which deviates from a first radius through a point of the pointed shape of the respective remaining thread part,

wherein a cutting edge on a first remaining thread part merges via a second radius into a rear edge on a second remaining thread part arranged before the first thread part in an implant screwing direction,

said cutting edge on the first remaining part being selected to provide an effective threading characteristic with respect to a desired strength of the implant,

wherein a cutting angle formed by the pointed shape is selected to be within a range of between 15-40°,

wherein each of plural thread relief edges effected by a respective one of the materially reduced thread parts is arranged essentially in the conically tapering portion and behind, as viewed in the implant screwing direction,

wherein full radius portions of the plural threads within the conically tapering portion are engaged with the bone to provide a threading relief function during the tapping operation,

wherein the self-tapping implant comprises multiple threads along at least a portion of a length thereof,

wherein each relief edge comprises two essentially plane relief surfaces which form an obtuse angle with respect to each other,

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wherein a first portion is provided with a multiple thread, and a second portion is provided with a single thread or thread numbering different from a thread numbering of the first portion.